

What is claimed:

1. A method for network-centric service distribution that integrates a wireless access service in a local environment through the use of a local Residential/Business Broadband Network (RBN) to a service provider's broadband transport network and to a service provider's broadband packet network that facilitates end-to-end packet telecommunication services, comprising the steps of:

providing access functions for connecting said service provider's broadband packet network to the RBN via said service provider's broadband transport network; and

providing call and service termination functions to a plurality of local RBN devices.

2. The method according to claim 1, wherein said access functions are provided by a Media Terminal Adapter (MTA) connected and coupled to an access port (AP).

3. The method according to claim 1, wherein said access functions are provided by a single unit comprising a Media Terminal Adapter integrated with an access port.

4. The method according to claim 1, wherein said call and service termination functions are provided by an access port sending and receiving wireless signals to said plurality of local RBN devices.

5. The method according to claim 1, wherein said RBN is coupled to said service provider's broadband transport network using a Hybrid Fiber Coax (HFC) cable system.

6. The method according to claim 1, wherein said RBN is coupled to said service provider's broadband transport network using a generic Digital Subscriber Line (xDSL).
7. The method according to claim 1, wherein said service provider's broadband transport network is coupled to said service provider's broadband packet network.
8. The method according to claim 1, wherein said plurality of local RBN devices are wireless.
9. The method according to claim 2, wherein said access port comprises a miniaturized radio base station for establishing analog and digital communication channels with said plurality of wireless local RBN devices.
10. The method according to claim 3, wherein said access port comprises a miniaturized radio base station for establishing analog and digital communication channels with said plurality of wireless local RBN devices.
11. The method according to claim 1, wherein said RBN is a residential network.
12. The method according to claim 1, wherein said RBN is a business network.
13. The method according to claim 2, wherein said connection between said access port and said Media Terminal Adapter is an Ethernet interface.

14. The method according to claim 8, wherein said plurality of wireless local RBN devices includes any home devices and resources, computing devices and resources and appliances capable of communicating with said access port.

15. The method according to claim 2, wherein said access port communicates with said plurality of wireless local RBN devices via at least one of: TIA/EIA-136 standards, Enhanced Data for Global Evolution (EDGE)/General Packet Radio Service (GPRS) standards, IEEE 802.11b standards,, Global System for Mobile Communications (GSM), IS-95, IEEE 802.15, Cellular Digital Packet Radio (CDPD), Call Division Multiple Access (CDMA), CDMA2000, Wideband CDMA (WCDMA), Personal Handyphone System (PHS) and IS-95 High data Rate (HDR).

16. The method according to claim 2, wherein said access port communicates with said plurality of wireless local RBN devices via at least one of a standardized air interface used for analog, digital, circuit, and packet communications to narrowband and broadband wireless devices, computing-telephony resources and appliances.

17. The method according to claim 3, wherein said access port communicates with said plurality of wireless local RBN devices via at least one of a standardized air interface used for analog, digital, circuit, and packet communications to narrowband and broadband wireless devices, computing-telephony resources and appliances.

18. The method according to claim 8, further comprising the step of sending instructions and information from a device in communication with said service provider's

broadband packet network via said service provider's broadband transport network to said Media Terminal Adapter coupled to said access port to said plurality of wireless local RBN devices.

19. The method according to claim 18, further comprising the step of distributing instructions and information including call features and related Operation, Administration and Maintenance (OA&M) instructions via a communication link between said access port and said plurality of wireless local RBN devices.

20. The method according to claim 19, further comprising the step of said device in communication with said service provider's broadband packet network receiving information from said plurality of wireless local RBN devices via said communication link between said plurality of wireless local RBN devices and said access port via said communication link between said access port and said Media Terminal Adapter via said service provider's broadband transport network via said service provider's broadband packet network.

21. The method according to claim 15, wherein said wireless local RBN devices use TIA/EIA-136 standards to communicate via a short message service.

22. A method for facilitating communication between a remote subscriber and any of a plurality of wireless local RBN devices via a service provider's broadband packet network, a service provider's broadband transport network and a Residential/Business Broadband Network (RBN), comprising the steps of :

providing access functions for connecting said service provider's broadband packet network to the RBN via said service provider's broadband transport network; and

providing call and service termination functions to a plurality of local RBN devices.

23. The method according to claim 22, wherein said access functions are provided by a Media Terminal Adapter (MTA) connected and coupled to an access port (AP).

24. The method according to claim 22, wherein said access functions are provided by a single unit comprising a Media Terminal Adapter integrated with an access port.

25. The method according to claim 22, wherein said call and service termination functions are provided by an access port sending and receiving wireless signals to said plurality of local network devices.

26. The method according to claim 22, wherein said RBN is a residential network.

27. The method according to claim 22, wherein said RBN is a business network.

28. A computer-readable medium having computer-executable instructions for remotely accessing a Residential/Business Broadband Network (RBN), wherein the computer-executable instructions are executed on a processor and comprise the steps of:

accessing the RBN of a subscriber;

communicating, after an authentication procedure, with the broadband home network of the subscriber to send a message to a device equipped with a wireless radio;

preparing and sending, by an associated server, a command for the device to a network server platform (NSP);

translating, by the NSP, the command into the message;

retrieving, by the NSP, an Internet protocol (IP) address for an access port (AP) of the subscriber's RBN;

wrapping the message in an IP message;

sending the IP message to the AP;

receiving, by the AP, the IP message;

extracting the message;

sending the message to the device;

receiving the message by the device;

executing the command; and

where desired, notifying the subscriber of successful delivery of the message.

29. The computer-readable medium, according to claim 28, wherein the step of notifying the subscriber of successful delivery of the message comprises the steps of:

sending, by the device, an acknowledgement message;

receiving, by the AP, the acknowledgement message;

retrieving, by the AP, the IP address of the NSP;

wrapping, by the AP, the acknowledgement message in a second IP message;

forwarding the second IP message to the NSP;

translating, by the NSP, the acknowledgement message into a command acknowledgement message;

forwarding, by the NSP, the command acknowledgement message to the associated server; and

sending, by the NSP, the command acknowledgement message to the subscriber that the command for the device was successfully executed.

30. The computer-readable medium according to claim 28, wherein all non-IP messages are in short message format.

31. A computer-readable medium having computer-executable instructions for remotely implementing a message exchange between a first subscriber's Residential/Business Broadband Network (RBN) and a second subscriber's RBN, wherein the computer-executable instructions are executed on a processor and comprise the steps of:

activating, by an originating user, a generating portable computer and calling a terminating computer using one of an IP address and a directory number (DN);

generating, by the originating user, a first call origination-no-ring message and sending the first call origination-no-ring message to a network server platform (NSP);

upon receiving the first call origination-no-ring message, registering by the NSP;

mapping, where needed, by the NSP, the DN to the IP address, and confirming a location of the terminating computer;

generating, by the NSP, a second call origination-no-ring message for the terminating computer and sending the second call origination-no-ring message to the terminating computer;

upon receiving the second call origination-no-ring message, determining by the terminating computer if a call can be completed and, where the call can be completed, generating an OK message and sending the OK message to the NSP;

upon receiving the OK message, forwarding, by the NSP, the OK message to the generating portable computer, instructing, by the NSP, a service provider's broadband transport network and a service provider's broadband packet network that the NSP has permission for an IP flow associated with the call;

sending an acknowledgement, by the generating portable computer, to the terminating computer;

requesting to reserve network resources, by the generating portable computer, to meet quality of service (QoS) requirements of the call;

where said request to reserve network resources is successful, sending, by the generating portable computer, a call origination-ring message directly to the terminating computer;

upon the terminating computer's receiving the call origination-ring message and successfully reserving network resources, generating RINGING to the generating portable computer and sending a RINGING message to the generating portable computer;

playing, by the generating portable computer, an audible ringback tone to the originating user;

upon the terminating computer's answering the call, sending, by the terminating computer, a second OK message to the generating portable computer;

generating, by the terminating computer, packets of encoded voice and sending the packets in a first stream to the generating portable computer using the IP address and port number specified in the first call origination (no-ring) message;



upon receiving the second OK message, responding, by the generating portable computer, with an ACK message;

playing, by the generating portable computer, the received first stream; and

generating, by the generating portable computer, packets of encoded voice and sending the packets in a second stream to the terminating computer using the IP address and port number specified in the second OK message to establish a voice path in both directions.

32. A computer-readable medium having computer-executable instructions for remotely implementing a message exchange using a Telecommunications Industry Association and Electronic Industries Alliance (TIA/EIA)-136 standard and Internet Engineering Task Force (IETF) Session Initiation Protocol (SIP) call flow from a Mobile Station (MS) using a Residential/Business Broadband Network (RBN) to a laptop using a second RBN, wherein the computer-executable instructions are executed on a processor and comprise the steps of:

initiating a call, by a calling user to a destination user (callee), using a directory number (DN) of said callee via said calling user's TIA/EIA-136 mobile station (MS) where MS registration has previously occurred and where the MS sends a TIA/EIA-136 Origination message to an access port (AP);

generating, by the AP, an INVITE-no-ring message and sending the INVITE-no-ring message to a network server platform (NSP);

validating, by the NSP, the MS and authorizing the MS for a service request;

mapping, by the NSP, the DN to an Internet Protocol (IP) address, if needed, and determining a location of a Terminating Laptop (LTt) for the callee;

generating, by the NSP an INVITE-no-ring message and sending the INVITE-no-ring message to the LTt;

upon receiving the INVITE-no-ring message, determining, by the LTt, if the LTt can accommodate the call and, if so, generating a 200 OK response and sending the 200 OK response to the NSP;

upon receiving the 200 OK message, forwarding, by the NSP, the 200 OK message to the AP and instructing a service provider's broadband transport network and a service provider's broadband packet network that the NSP has permission for IP flow associated with the call;

allocating, by the AP, RF resources to the MS and informing the MS of an allocated RF traffic channel via a Digital Traffic Channel (DTC) Designation message while the AP is sending an ACK message directly to the LTt;

informing, by the MS, to the AP that the MS is tuned to the allocated traffic channel via the MS on DTC notification;

attempting, by the AP, to reserve network resources to meet QoS requirements of the call and, if network resource reservation is successful, sending, by the AP, an INVITE-ring message directly to the LTt;

upon the LTt receiving the INVITE-ring message and successfully reserving network resources, beginning, by the LTt, to generate RINGING to the destination user and sending a 180 RINGING message to the AP whereupon the AP begins playing an audible ringback tone to a calling user;

upon the destination user answering the call, sending, by the LTt, a 200 OK message to the AP and generating packets of encoded voice and sending the packets of encoded

voice in a stream to the AP using the IP address and port number specified in the INVITE-no-ring message; and

upon receiving the 200 OK message, responding, by the AP, with an ACK message to the LTt.

33. The computer-readable medium according to claim 29, wherein transcoding, by the AP, the stream that is received from the LTt to the TIA/EIA-136 coding scheme, if needed, for playback to the MS user and transcoding, if needed, the TIA/EIA-136 voice packets to packets of encoded voice, and sending them to the LTt using the IP address and port number specified in the 200 OK message, establishes the voice path in both directions.

34. A computer-readable medium having computer-executable instructions for remotely accessing network data services from a wireless station using a Residential/Business Broadband Network (RBN) to access a broadband Internet Protocol network via a service provider's broadband transport network and further via a service provider's broadband packet network wherein the broadband Internet Protocol network provides a transport medium for a user and services rendered by other providers, said user and said services being transparent to the broadband Internet Protocol network, the service provider's broadband transport network and the service provider's broadband packet network, and further wherein the computer-executable instructions are executed on a processor and comprise the steps of:

upon the user activating the wireless station, sending, by the wireless station, a registration message to an access port (AP);

optionally verifying, by the AP, that the wireless station is valid for the RBN of the user;

forwarding, by the AP, the registration message to a network server platform (NSP) via a Media Terminal Adapter (MTA) and one of hybrid fiber coaxial system (HFC) and xDSL system, wherein, where desired, as a security measure, invoking, by the NSP, an authentication procedure with the wireless station to verify the registration and if the authentication procedure fails, then ignoring, by the NSP, the registration message and considering the user as inactive;

upon the NSP accepting the registration by the wireless station, responding, by the NSP, with a Registration ACK to the AP;

forwarding, by the AP, the Registration ACK message to the wireless station and the user starting to receive subscribed network services that include data services; and

where desired, accessing other Content Service Providers (CSP) for a special service, sending, by the user, a log-on request to a CSP server and, when the log-on request to the CSP is successful, allowing, by the CSP, the user to access the CSP special service.

35. A computer-readable medium having computer-executable instructions for remotely accessing network data services from an active wireless station registered with an access port (AP) using a Residential/Business Broadband Network (RBN) to access a broadband Internet Protocol network via a service provider's broadband transport network and further via a service provider's broadband packet network wherein the broadband Internet Protocol network provides a transport medium for a roaming user and services rendered by other providers, said user and said services being transparent to the

broadband Internet Protocol network, the service provider's broadband transport network and the service provider's broadband packet network, and further wherein the computer-executable instructions are executed on a processor and comprise the steps of:

de-activating, by the roaming user, the active wireless station registered with the AP, whereupon the wireless station sends a De-registration message to the AP;

forwarding, by the AP, the De-registration message to a network server platform (NSP) via a Media Terminal Adapter (MTA) and one of a hybrid fiber coaxial system (HFC) and xDSL system, and entering, by the NSP, an inactive status for the roaming user;

roaming, by the roaming user with the wireless station, to a remote location that is also equipped with a broadband local networking service and the RBN and activating the wireless station;

sending, by the wireless station, a Registration message to an AP of the remote location (the visited AP), which verifies that the wireless station is valid for the RBN being visited;

forwarding, by the visited AP, the Registration message to the network server platform (NSP) via a Media Terminal Adapter (MTA) and one of a hybrid fiber coaxial system (HFC) and xDSL system, and where desired, as a security measure, invoking, by the NSP, an authentication procedure with the wireless station to verify registration whereupon the NSP records that the roaming user is now active and associates the wireless station with the remote location, directing, by the NSP, new incoming services for the wireless station to the remote location, and further, if the authentication procedure fails, ignoring, by the NSP, the registration and maintaining an inactive status for the roaming user;

upon the NSP receiving the remote location of the wireless station, responding, by the NSP, with a Registration Ack to the visited AP;

forwarding, by the visited AP, the Registration Ack to the wireless station to allow the roaming user to receive subscribed network services in the remote location; and

where desired, if the user desires to access other Content Service Providers (CSP) for a special service, sending a log-on request to a desired CSP server and upon the log-on request to the CSP being successful, allowing, by the CSP, the user to access the CSP special service.

36. A method for an access port (AP) to provide access functions for a network-centric distribution system that integrates a wireless access service in a local environment through the use of a local Residential/Business Broadband Network (RBN) to a service provider's broadband transport network and to a service provider's broadband packet network that facilitates end-to-end packet telecommunication services, comprising the steps of:

accepting signals from a plurality of wireless devices; and

forwarding said signals to an IEEE 802.11b interface for a wireless modem, wherein said signals comprise intranet telephony and data.

37. A method for an Access Port (AP) to provide access functions for a network-centric distribution system that integrates a wireless access service in a local environment through the use of a local Residential/Business Broadband Network (RBN) to a service provider's broadband transport network and to a service provider's broadband packet

network that facilitates end-to-end packet telecommunication services, comprising the steps of:

accepting signals from a plurality of wireless devices; and

forwarding said signals to an Ethernet interface for a Voice over Internet Protocol (VOIP)/Ethernet Processor, wherein said signals comprise intranet telephony and data.

38. A method for a Media Terminal Adapter (MTA) to support access functions for a network-centric distribution system that integrates a wireless access service in a local environment through the use of a local Residential/Business Broadband Network (RBN) to a service provider's broadband transport network and to a service provider's broadband packet network that facilitates end-to-end packet telecommunication services, comprising the steps of:

accepting voice signals from a plurality of tip/ring interfaces; and

forwarding said voice signals to an Ethernet interface for a Voice over Internet Protocol (VOIP)/Ethernet processor.

39. A method for a Media Terminal Adapter (MTA) to support access functions for a network-centric distribution system that integrates a wireless access service in a local environment through the use of a local Residential/Business Broadband Network (RBN) to a service provider's broadband transport network and to a service provider's broadband packet network that facilitates end-to-end packet telecommunication services, comprising the steps of:

accepting voice signals from a plurality of tip/ring interfaces; and

forwarding said voice signals to a broadband transport interface for back haul of data and voice packets.

40. A method for an Intelligent Broadband Access Point (IBAP) to provide access functions for a network-centric distribution system that integrates a wireless access service in a local environment through the use of a local Residential/Business Broadband Network (RBN) to a service provider's broadband transport network and to a service provider's broadband packet network that facilitates end-to-end packet telecommunication services, comprising the steps of:

accepting signals from a plurality of wireless devices;

forwarding said signals to an IEEE 802.11b interface for a wireless modem, wherein said signals comprise intranet telephony and data;

accepting voice signals from a plurality of tip/ring interfaces; and

forwarding said voice signals to an Ethernet interface for a Voice over Internet Protocol (VOIP)/Ethernet processor.

41. A method for an Intelligent Broadband Access Point (IBAP) to provide access functions for a network-centric distribution system distribution that integrates a wireless access service in a local environment through the use of a local Residential/Business Broadband Network (RBN) to a service provider's broadband transport network and to a service provider's broadband packet network that facilitates end-to-end packet telecommunication services, comprising the steps of:

accepting signals from a plurality of wireless devices;

forwarding said signals to an IEEE 802.11b interface for a wireless modem, wherein said signals comprise intranet telephony and data;



accepting voice signals from a plurality of tip/ring interfaces; and

forwarding said voice signals to a broadband transport interface for backhaul of data and voice packets.

42. A method for an Intelligent Broadband Access point (IBAP) to provide access functions for a network-centric distribution system that integrates a wireless access service in a local environment through the use of a local Residential/Business Broadband Network (RBN) to a service provider's broadband transport network and to a service provider's broadband packet network that facilitates end-to-end packet telecommunication services, comprising the steps of:

accepting signals from a plurality of wireless devices;

forwarding said signals to an Ethernet interface for a Voice over Internet Protocol (VOIP)/Ethernet Processor, wherein said signals comprise intranet telephony and data;

accepting voice signals from a plurality of tip/ring interfaces; and

forwarding said voice signals to an Ethernet interface for a Voice over Internet Protocol (VOIP)/Ethernet Processor.

43. A method for an Intelligent Broadband Access Point (IBAP) to provide access functions for a network-centric distribution system that integrates a wireless access service in a local environment through the use of a local Residential/Business Broadband Network (RBN) to a service provider's broadband transport network and to a service provider's broadband packet network that facilitates end-to-end packet telecommunication services, comprising the steps of:

accepting signals from a plurality of wireless devices;

forwarding said signals to an Ethernet interface for a Voice over Internet Protocol (VOIP)/Ethernet Processor, wherein said signals comprise intranet telephony and data;

accepting voice signals from a plurality of tip/ring interfaces; and

forwarding said voice signals to a broadband transport interface for back haul of data and voice packets.

44. The method according to claim 12, wherein said business network is a public network.

Patent for Invention